

BIOCHEMISTRY

(for students entering Biology in Fall 2011 or later)

Graduation Requirements:

- A minimum 2.0 average in all biology courses required for this major
- A minimum of 32 credits at or above the 300-level completed at a Purdue campus
- At least one 500-level Biology course other than BIOL 54200
- 124 Total Credits

BIOLOGY:

1. BIOL 12100 Biology I: Diversity, Ecology and Behavior (2 cr.; fall)
2. BIOL 13100 Biology II: Development, Structure, and Function of Organisms (3 cr.; spring)
3. BIOL 13500 First Year Biology Lab (2 cr.; both) or BIOL 19500 CASPIE Laboratory (2cr.;both)
4. BIOL 23100 Biology III: Cell Structure and Function (3 cr.; fall)
5. BIOL 23200 Laboratory in Biology III: Cell Structure and Function (2 cr.; fall)
6. BIOL 24100 Biology IV: Genetics and Molecular Biology (3 cr.; spring)
7. BIOL 24200 Laboratory in Genetics and Molecular Biology (2 cr.; spring)
8. BIOL 28600 Intro. to Ecology & Evolution (2 cr.; spring) or BIOL 29500, Intro. to Evolution & Ecology (2 cr.; fall)
9. Intermediate Requirement: Choose one of these four options:
(Biochemistry majors must choose BIOL 39500, Macromolecules)
 - A. **BIOL 39500 Macromolecules** (3 cr.; fall)
 - B. BIOL 32800 Principles of Physiology (4 cr.; spring)
 - C. BIOL 36600 Principles of Development (4 cr.; spring)
 - D. BIOL 43800 General Microbiology (3 cr.; fall) and BIOL 43900 Microbiology Lab (2 cr.; fall)
10. BIOL 41500 Intro. to Molecular Biology (3 cr.; fall)
11. BIOL 42000 Eukaryotic Cell Biology (3 cr.; fall)
12. BIOL 59500 Methods & Measurement in Physical Biochemistry (3 cr.; fall)
13. Biology Electives: Two of these courses:
 - A. BIOL 41600 Viruses and Viral Diseases (3 cr.; spring)
 - B. BIOL 43800 General Microbiology (3 cr.; fall)
 - C. BIOL 47800 Intro to Bioinformatics (3 cr.; fall)
 - D. BIOL 48100 Eukaryotic Genetics (3 cr.; spring)
 - E. BIOL 51100 Intro. to X-Ray Crystallography (3 cr.; spring)
 - F. BIOL 51700 Molecular Biology of Proteins (2 cr.; spring)
 - G. BIOL 52900 Bacterial Physiology (3 cr.; spring)
 - H. BIOL 53700 Immunology (3 cr.; spring)
 - I. BIOL 53800 Molecular, Cellular & Developmental Neurobiology (3 cr.; spring)
 - J. BIOL 54100 Molecular Genetics of Bacteria (3 cr.; fall)
14. BIOL 44201 Introductory Module: Protein Expression plus two additional modules of BIOL 442xx¹ (1-2 cr.; both) (various titles) or 54200¹ Neurophysiology (1 cr.; fall)
15. BCHM 56100 General Biochemistry I (3 cr.; fall)
16. BCHM 56200 General Biochemistry II (3 cr.; spring)

¹ The two additional modules may be replaced by one of these: BIOL 43900 Microbiology Lab (2 cr.; fall); or by four credits of undergraduate research (BIOL 49400 or 49900 – this must be approved in advance by the Undergraduate Studies Committee).

Other Biochemistry requirements are on the back of this page.

BIOCHEMISTRY HONORS CURRICULUM

A 3.0 or higher graduation index is required to graduate in the Biochemistry Honors Curriculum.

In addition to the requirements listed for the Biochemistry program, at least two of the following courses/course sequences must be completed when fulfilling other requirements:

1. CHM 32100 Analytical Chemistry (4 cr.; fall)
2. CHM 37300 Physical Chemistry (3 cr.; fall) and CHM 374 Physical Chemistry (4 cr.; spring)
3. PHYS 17200 Modern Mechanics (4 cr.; both) and one of the following two choices:
 - A. PHYS 27200 Electric and Magnetic Interactions (4 cr.; both) or
 - B. PHYS 24100 Electricity and Optics (3 cr.; both) and PHYS 25200 Electricity and Optics Laboratory (1 cr.; spring)

CHEMISTRY

1. CHM 11500 General Chemistry (4 cr.; both)
 2. CHM 11600 General Chemistry (4 cr.; both)
 3. CHM 26505 Organic Chemistry (3 cr.; fall)
 4. CHM 26300 Organic Chemistry Lab (1 cr.; fall)
 5. CHM 26605 Organic Chemistry (3 cr.; spring)
 6. CHM 26400 Organic Chemistry Lab (1 cr.; spring)
7. One of these three courses:
- A. BCHM 22100 Analytical Biochemistry (3 cr.; both)
 - B. CHM 22400 Intro. to Quantitative Analysis (4 cr.; spring)
 - C. CHM 32100 Analytical Chemistry (4 cr.; fall)
8. One of these two options:
- A. CHM 37200 Physical Chemistry (4 cr.; spring)
 - B. CHM 37300 Physical Chemistry (3 cr.; fall) and CHM 37400 Physical Chemistry (4 cr.; spring)

MATH

For the Biochemistry Major, you must choose one of the following calculus options when fulfilling CoS Core requirements: MA 16100-16200, MA 16500-16600, or MA 17300.

PHYSICS

One of these two options:

1. PHYS 22000 General Physics (4 cr.; both) and PHYS 22100 General Physics (4 cr.; both)
2. PHYS 17200 Modern Mechanics (4 cr.; both) and one of the following two choices:
 - A. PHYS 27200 Electric and Magnetic Interactions (4 cr.; both) or
 - B. PHYS 24100 Electricity and Optics (3 cr.; both) and PHYS 24200 Intro to Heat and Thermal Physics (1 cr.; spring) and PHYS 25200 Electricity and Optics Laboratory (1 cr.; spring)

COLLEGE OF SCIENCE CORE REQUIREMENTS

Composition and Presentation; Teambuilding and Collaboration; Language and Culture; Great Issues; General Education; Multidisciplinary Experience; Mathematics; Statistics; Computing (see handout).

FREE ELECTIVES

Approximately 0 - 9 credits